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Coffee milk beverage produced for vending machine sale:

Physical and oxidative stability

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Storing lipid containing products under extreme conditions can affect the oxidative stability of the product. Moreover, the physical stability can be influenced as well. Coffee beverage for vending machine sale is an example of a product stored under extreme and non-controlled conditions if the vending machine is without temperature control.

This study aimed at evaluating the oxidative stability of sterilized coffee beverages with different amounts of milk cream designed for sale in vending machines under conditions comparable to those that may occur in all time of year. Moreover, the physical stability of the coffee milk beverages was also evaluated. The study was designed with seven different coffee milk samples. The samples differed in the total amount of fat and proteins, 1.05 – 1.85% and 0.128 – 0.224%, respectively. Hence the ratio of fat to protein (1.03 – 8.26) was also varied between coffee milk samples.

Physical and oxidative stability of the coffee milk were measured during storage (2 months) at two different temperatures (20 and 50°C). The physical stability was evaluated from the droplet size measured and oxidative stability was evaluated from the concentration of hydroperoxides (PV) and secondary volatile oxidation products. It is hypothesized that the storage temperature can affect the oxidative stability of the coffee milk beverage samples. Moreover, the different amount of total fat and protein and ratios is expected to influence the volatile oxidation products formed in the coffee milk stored at the different temperatures.

Preliminary data from the study showed that PV was low in all coffee milk samples during 2 months of storage (0.5 - 2.4 meq. ROOH / kg oil). Moreover, the PV of the coffee seems to be unaffected by the storage temperature (20 and 55°C).